Section II (Remarks)

A. Summary of Amendment to the Claims

By the present Amendment, claims 1, 7, 9, 10 and 17 have been amended; claim 2 has been cancelled; and new claim 23 has been added. No new matter within the meaning of 35 U.S.C. §132(a) has been introduced by the foregoing amendments.

Specifically the amendments to the claims are supported by original claim 2 and by the specification at page 3, lines 17-24 and in the Examples.

It is noted that claims 21 and 22 were added in the Response mailed December 10, 2008. Accordingly, at the time of issue of the Official Action mailed August 20, 2009, claims 1-22 were pending and under examination. Acknowledgement of the examination of claims 21 and 22 is respectfully requested.

All amendments made herein are fully consistent with and supported by the originally-filed disclosure of this application.

B. Information Disclosure Statement

In the Office Action mailed August 20, 2009, the examiner stated that References AD, AE, AF and AI, originally cited on the Information Disclosure Statement submitted on February 23, 2006, have not been considered in the prosecution of the present application, since the references were provided in German.

In response, applicants respectfully draw the examiner's attention to the Information Disclosure Statement submitted herewith, again citing References AD, AE, AF and AI. A concise English summary of the relevance of each reference is also provided, in compliance with the requirements of 37 C.F.R. §1.98(a)(3)(i). Consideration of these references by the examiner is respectfully requested.

C. Regarding the Restriction Requirement

Applicants acknowledge the examiner's withdrawal of the Restriction Requirement. In accordance with such withdrawal, all of claims 1-22 were pending and under examination at the time of issue of the Office Action of August 20, 2009.

D. Rejection of the Claims Under 35 U.S.C. §112, second paragraph

In the Office Action mailed August 20, 2009 the examiner has rejected claims 1-9 and 17 under 35 U.S.C. §112, second paragraph as being indefinite for failing to point out and distinctly claim the subject matter of the invention. Specifically, the examiner has rejected the claims for use of the phrases "…in such a manner…" in claim 1 and "cellulosic/polymer" in claim 17.

Applicants respectfully draw the examiner's attention to the paragraph at page 3, lines 17-24 of the present application. Such paragraph details aspects of the methods of the invention, including creation of cellulosic forms. Particularly, the examiner's attention is drawn to the fact that the "forms are spun according to the dry-wet extrusion method…" and the use of "polyacrylates...weakly cross-linked by a multifunctional cross-linker."

In order to further clarify the subject matter of the claimed invention, applicants have amended claim 1 to include the aspects of forms spun according to the dry-wet extrusion method and polyacrylates as ion exchangers. As amended, it is clear that "in such manner" refers to a method where the combination of the polyacrylate and the ions or agents is sufficient to result in deposition of the ions or agents on the polyacrylate.

It is respectfully submitted that, as amended, claim 1 is sufficiently definite to meet the requirements of 35 U.S.C. §112, second paragraph.

With regard to the term "cellulosic/polymer" in claim 17, the examiner's attention is again respectfully drawn to Section I above. As amended, claim 17 no longer contains the term "cellulosic/polymer." The rejection is therefore moot and amended claim 17 is sufficiently definite to meet the requirements of 35 U.S.C. §112, second paragraph.

E. Rejection of the Claims Under 35 U.S.C. §102 and 103

In the Office Action mailed August 20, 2009, the examiner rejected claims 1-16 and 18-20 under 35 U.S.C. §102(b) as anticipated, or in the alternative, under 35 U.S.C. §103(a) as obvious over

U.S. Patent Application Publication No. 2003/0055146, hereinafter referred to as "Chang." Applicants respectfully disagree.

The examiner's attention is respectfully drawn to the language of independent claim 1. The claim has been amended to clarify that the method comprises spinning of cellulosic forms comprising weakly-linked polyacrylate and subsequent loading of such extruded forms with active agents by deposition, in order to provide a functional cellulosic form. The functional effect of the resulting cellulosic forms can be measured by determining the concentration of the active agents in an aqueous solution at equilibrium, following application of the cellulosic form to the aqueous solution.

Chang, by contrast, relates to "triggerable, water-dispersable cationic polymers" (Abstract). Such polymers are formulations that have a "trigger property" such that they are insoluble in some wetting solutions and are water soluble (para [0009]). The polymers may be applied to substrates, e.g. fibers, to act as binders of those substrates (para. [0068]). One example of a substrate is given as polyacrylates (para. [0076]). The resulting coated substrates may be placed in a wetting solution, optionally comprising antibacterials (para. [0103]).

By the structure of the composition of Chang, the essential feature of solubility of the cellulosic carrier in water will be effected, independent of pH or the amount of naturally occurring salts in the water. It is noted that the intent of Chang is to provide a compound that is environmentally friendly, disposable and is water dispersible after use.

The present invention provides methods of forming a functional cellulosic form where the deposited "ions or agents are released…upon application of the cellulosic form in an aqueous solution. " Therefore the ions or agents of the functional cellulosic forms generated by the claimed methods result in action of those ions or agents during use.

Chang fails to describe or in any way suggest a method for producing a functional cellulosic form, or incorporation of the polymers into the substrates, as recited in applicants' claim 1. Rejected dependent claims 3-9 depend directly or indirectly from the method of claim 1 and therefore are correspondingly distinguished over Chang.

Claim 10 of the application, as amended, recites:

> "A functional cellulosic form spun according to a dry-wet extrusion method, characterised in that said form contains a polyacrylate weakly crosslinked by a multifunctional crosslinker, wherein the polyacrylate is loaded with bactericidal metal ions and/or ionic pharmaceutic agents and that said form releases in aqueous solutions the metal ions and/or agents at a concentration corresponding to the current equilibration concentration."

Chang fails to describe or in any way suggest a cellulosic form loaded with ions or agents, where the ions or agents are released during use. Instead, Chang provides a composition that remains inactive when wetted with a wetting solution, but is activated to decompose when in direct, substantial contact with water.

Chang fails to describe or in any way suggest a cellulosic form, as recited in claim 10 of applicants' claimed invention. Rejected dependent claims 11-16 and 18-20 depend directly or indirectly from claim 10 and therefore are correspondingly distinguished over Chang. Withdrawal of the rejection is respectfully requested.

Additionally, in the Office Action mailed August 20, 2009, the examiner rejected claims 14 and 17 as obvious under 35 U.S.C. §103(a) in view of Chang and further in view of secondary references U.S. Patent No. 5,853,867, hereinafter referred to as "Harada" (claim 14) and Collier, *J. Polymers and the Environ.*, vol. 8, no. 3, pp. 1-2, hereinafter referred to as "Collier" (claim 17). Applicants respectfully disagree.

Claims 14 and 17 depend from claims 1 (claim 17) and claim 10 (claim 14). By virtue of their dependency, claims 14 and 17 contain all the limitations of the claims from which they depend. As set forth in detail above, the claimed invention is not anticipated by or obvious in view of Chang with respect to claims 1-16 and 18-20. Neither of Harada or Collier remedy the deficiencies of Chang.

Harada is cited as providing "a starting point for the cross linking concentration optimization of Chang…" (August 20, 2009 Office Action, p. 6.) The examiner alleges that one of skill in the art would be motivated to combine Chang and Harada "to obtain absorbents with excellent water retaining power." Applicants respectfully disagree.

It is a stated objective of Chang to obtain compositions that are water soluble. Once a composition of Chang is contacted with water, the composition is activated to decompose. Therefore one of skill in the art would not be motivated to combine the water-soluble

composition of Chang with a water retaining composition of Harada. Accordingly, the form of claim 14 would not have been obvious to one of skill in the art in view of Chang and Harada. Withdrawal of the rejection is respectfully requested.

Collier is cited by the examiner as disclosing common methods for making lyocell. However, it is noted that Collier describes a study of the rheological behavior of different cellulose solutions. Chang does not describe the influence of an additive on the rheological behavior or on the stability of a cellulose solution used in the lyocell fiber formation process. It is well known to those of skill in the art that cellulose solutions for lyocell fiber formation are very sensitive to any additive. An additive may have unpredictable effects on the solution, e.g., the viscosity may increase significantly, making the solution non-spinnable, and/or the stability of the solution may suffer by degradation of the solvent or of the cellulose. Therefore, one of skill in the art would not have had a reasonable expectation of success in the use of the methods of Collier in combination with Chang. Furthermore, the combination of Collier and Chang is not predictive of success of applicants' claimed method.

The combination of Chang and Collier fails to describe or suggest a method of producing a functional cellulosic form spun according to a dry-wet extraction method, comprising loading of the fibers with silver ions and where the ions are released during use. Accordingly, the method of claim 17 would not have been obvious to one of skill in the art in view of Chang and Collier. Withdrawal of the rejection is respectfully requested.

Further in the Office Action mailed August 20, 2009, claims 10-13 and 18-20 are rejected as obvious under 35 U.S.C. §103(a) in view of U.S. Patent No. 6,660,903, hereinafter referred to as "Chen," and further in view of Harada. Applicants respectfully disagree.

Independent claim 10 recites a "functional cellulosic form spun according to a dry-wet extrusion method" which contains "a polyacrylate weakly crosslinked by a multifunctional crosslinker" where the polyacrylate is "loaded with bactericidal metal ions and/or ionic pharmaceutic agents." The combination of Chen and Harada does not describe such a cellulosic form.

The examiner cites to the abstract of Chen as support for the statement that "Chen discloses a cellulosic form…" of claim 10. Applicants respectfully disagree. Chen describes an absorbent article potentially containing cellulosic or other superabsorbent fibers. Chen does not describe

any method of forming the cellulose materials used in the absorbent article, nor does Chen describe the composition of the fibers. Chen fails to describe or suggest a cellulosic form, as recited in claims 10-13 and 18-20.

Chen is cited in combination with Harada, where Harada is alleged to provide "superabsorbent particles, include polyacrylates…have cross-linkers present in the range of 0.01-2%...which is a weakly linked crosslinked polymer." (Office Action mailed August 20, 2009, p. 7.) Harada fails to remedy the deficiencies of Chen.

Harada "concerns an absorbent composite which comprises a supporting member and a cationic absorbent polymer and anionic absorbent polymer particles fixed to the supporting member…" (Harada, col. 2, ll. 64-67.) Harada does not describe a cellulose solution added with weakly crosslinked ion exchanger and forming of this solution.

Therefore, the combination of Chen and Harada fails to describe or suggest a "functional cellulosic form …[that] contains a polyacrylate weakly crosslinked by a multifunctional crosslinker…"

Additionally, Harada describes an absorbent member that will contain the absorbed liquids even under pressure (Abstract). Therefore the polyacrylate described in Harada would provide secure absorbing and retention of the liquids, as well as any contained ions. This characteristic teaches away from the form recited in claim 10, which recites that the functional form release "in aqueous solutions the metal ions and/or agents at a concentration corresponding to the current equilibration concentration."

Further, the examiner alleged that use of the form of Chen with the superabsorbents of Harada and "loading antimicrobial silver zeolites" into the cellulosic form. Applicants respectfully submit that this combination still does not provide the cellulosic form of claim 10 and claims 11-13 and 18-20 dependent therefrom.

The functional cellulosic forms of claims 10-13 and 18-20 are "spun according to a dry-wet extrusion method." The present inventors have discovered that cellulosic forms made by such method with polyacrylates possess surprising characteristics.

It is well known in the art that dry-wet-spun fibers are more oriented and highly attached to each other. This means that there are few, if any, caverns or cavities within fibers made by dry-wet-spinning that would serve as space for additives. Accordingly, incorporating additional functions into a dry-wet-spun fiber is especially difficult, because they are more densely packed with higher orientation.

In view of the above, one of skill in the art would be inclined to use common spinning methods for fiber formation, with an expectation of yielding fibers with sufficient cavities and usable, open space for adding an additive. It was therefore an unexpected discovery that use of dry-wet-spun polyacrylate fibers provide the claimed cellulosic forms, with high tensile strength and superior stability.

Accordingly, the combination of Chen and Harada fails to describe or suggest a "functional cellulosic form spun according to a dry-wet extrusion method…"

The combination of Chen and Harada fails to describe or suggest a cellulosic form as recited in claim 10 and claims 11, 12, and 18-20, dependent therefrom. Accordingly, the cellulosic form of claims 10-13 and 18-20 would not have been obvious to one of skill in the art in view of Chen and Harada. Withdrawal of the rejection is respectfully requested.

Additionally, in the Office Action mailed August 20, 2009, claims 18-20 are rejected as obvious under 35 U.S.C. §103(a) in view of Chen and Harada and further in view of U.S. Patent No. 6,258,368, hereinafter referred to as "Beerse." Applicants respectfully disagree.

As described in detail above, claims 10-13 and 18-20 are not obvious in view of the combination of Chen and Harada. Beerse is cited by the examiner as "disclos[ing] in antimicrobial wipes copper, mercury, zinc and zirconium can be used…[and] that benzoic and sorbic acid is an antibacterial agent…" (Office Action mailed August 20, 2009, p. 9.) However, Beerse does not remedy the deficiencies of the combination of Chen and Harada with respect to claims 18-20. Specifically, the combination of Chen and Harada, further in view of Beerse, fails to describe or suggest a "functional cellulosic form spun according to a dry-wet extrusion method characterised in that said form contains a polyacrylate weakly crosslinked by a multifunctional crosslinker, wherein the polyacrylate is loaded with bactericidal metal ions and/or ionic pharmaceutic agents

and that said form releases in aqueous solutions the metal ions and/or agents at a concentration corresponding to the current equilibration concentration." (emphasis added.)

Therefore, the combination of Chen and Harada, further in view of Beerse, fails to describe or suggest a cellulosic form of claims 18-20. Accordingly, the form of claims 18-20 would not have been obvious to one of skill in the art in view of Chen and Harada, and further in view of Beerse. Withdrawal of the rejection is respectfully requested.

F. Fee Payable for Added Claims

By the present Amendment, new dependent claim 23 has been added. However, dependent claim 2 has been cancelled. Accordingly no fees are due for addition of new claim 23.

CONCLUSION

Based on the foregoing, all of Applicants' pending claims 1, 3-23 are patentably distinguished over the art, and in form and condition for allowance. The examiner is requested to favorably consider the foregoing, and to responsively issue a Notice of Allowance. If any issues require further resolution, the examiner is requested to contact the undersigned attorney at (919) 419-9350 to discuss same.

Respectfully submitted,

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